United States Department of Agriculture
Natural Resources Conservation Service

Integrating AQAC into NRCS Practices, Activities and Programs

Overview

- AQAC in NRCS
- Integrating AQAC in conservation planning

AQAC in NRCS

- Past (pre-1994)
  - Air quality = wind erosion
- Present (1994-Now)
  - Air is a resource that has to be addressed
  - Air-related resource concerns list has grown

Current NRCS AQAC Efforts

- Gather expertise
- Get information to the field

Current NRCS AQAC Efforts

- Gather expertise
  - AQAC Technology Development Team
  - NHQ AQAC contacts
    - National AQ Specialist
    - National Atmospheric Resource Specialist
  - State AQAC contacts
    - Oregon = Dave Dishman
  - USDA Agricultural Air Quality Task Force

Current NRCS AQAC Efforts

- Get information to the field
  - Training
  - Practices
  - Tools
  - Programs

Current NRCS AQAC Efforts

- Get information to the field
  - Training
    - State-level AQAC/Energy training – CO, PA, OR
    - State AQAC contact netmeetings
    - Smoke management training in NRCS Prescribed Burning courses
    - Multiple meeting presentations

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Current NRCS AQAC Efforts

- Get information to the field
  - Practices
    - AQAC Practice Standards Workgroup
      - Review/revise existing practice standards
      - Only one specifically focused on air resources
        - » 370—Atmospheric Resource Quality Management
  - Tools
    - COMET-VR
    - WEPS
    - Guidance documents

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COMET-VR Overview

www.cometvr.colostate.edu

- **C**arb**O**n **M**anagement **E**valuation **T**ool-- **V**oluntary **R**eporting of GHGs
- On-line decision support tool for estimating soil carbon sequestration
- Calculates annual carbon change using a dynamic Century model simulation
- For official GHG reporting and potential for carbon credit trading
- Interfaces to a land use database

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COMET-VR Overview

- Version 1.1 with expanded rotation choices now operational--thousands of additional scenarios: for crop and rangeland
- Version 1.2 (agroforestry) out late this summer
- Version 1.3 (incl. N_2O) coming in 2009

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WEPS

- **Wind Erosion Prediction System**
- Working with ARS, this tool will predict PM10 moving off-site; also looking at PM2.5
- Examining WEPS and weather model linkage for PM transport estimates

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Guidance Documents

- Fact sheets
  - Air Quality and Livestock Operations
  - Particulate Matter and Animal Operations
  - Ozone Precursors and Animal Operations
  - Odors and Animal Operations
  - Greenhouse Gases and Animal Operations

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Guidance Documents

- AQAC on-farm assessment checklists
  - General farmstead
  - Animal operations
  - Cropping operations
- AQAC glossary
- AQAC website reference list

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Current NRCS AQAC Efforts

- Get information to the field
  - Programs
    - AQAC currently addressed in:
      - Conservation technical assistance (CTA)
      - Environmental Quality Incentives Program (EQIP)
      - Conservation Innovation Grants (CIG)
      - Conservation Security Program (CSP)

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Conservation Activities Make a Difference!

- Conservation Management Plans from the NRCS adopted by more than 6,000 farmers in the San Joaquin Valley have helped bring the SJV into attainment last year for PM_{10}
- NRCS enables producers to make "clean" choices through conservation planning and incentive programs

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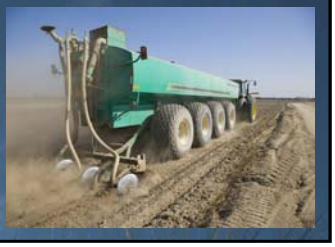
AQAC in NRCS

- Future
  - Better integrate AQAC into the agency
    - Training
    - Practices
    - Tools



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Future NRCS AQAC Efforts

- Training
  - Official in-class training for state AQAC contacts
  - Official training for all NRCS employees
    - Four online training courses nearing completion
      - Air Quality, Climate Change and Energy
      - Why Should We Care About Air Quality?
      - Air-Related Resource Concerns
      - Greenhouse Gases and Carbon Sequestration
    - Others planned
  - Continue specialized meeting presentations

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Future NRCS AQAC Efforts

- Practices
  - Continue reviewing/revising existing practice standards
  - Develop new standards as needed
    - 4 New AQ Standards in Review
      - Airflow Filtration and Scrubbing
      - Precision Pest Control Application*
      - Dust Control on Unpaved Roads and Surfaces*
      - Stationary Engine Replacement and Retrofit*
    - Request to assist OR in developing an Orchard and Vineyard AQ Management standard

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Future NRCS AQAC Efforts

- Tools
  - SNAP
  - PM Emissions Estimator Tool
  - NOSE
  - Fire and smoke management tools
  - Other guidance documents

SNAP

- **S**imple **N**RCS **A**QAC **P**lanning Tool
  - Given inputs regarding an agricultural operation, SNAP will assess AQAC resource concerns and propose management practices/activities for addressing identified concerns
- CIG also in progress to develop a National AQ Assessment Tool for livestock operations

PM Emissions Estimator

- Determine PM emissions reductions from application of various practices
  - Based on CA PM emission factors

NOSE

- **N**RCS **O**dor **S**iting **E**valuator
  - Will be used to evaluate odor impacts from animal operations and determine the effects of operational changes and application of management practices/activities

Fire and Smoke Management

- BlueSky
- Google Maps Smoke Screening Tool
- Weather Planner

Guidance Documents

- Fact sheets
  - Greenhouse Gases
  - Chemical Drift
  - Ozone and Agriculture
  - Smoke Management and Prescribed Burns
  - Manure Management and Air Quality
  - Air Quality Regulations and Agriculture
  - Air Quality Siting Considerations for Animal Operations
  - Others

Guidance Documents

- National Engineering Handbook Chapters on Air Quality and Atmospheric Change
  - Introduction and Overview*
  - Odor Management*
  - Greenhouse Gases and Carbon Seq.*
  - Ozone*
  - Chemical Drift*
  - Visibility*
  - Fugitive Dust*
  - Ammonia
  - VOCs / NOx
  - Particulate Matter

*Completed, In Review

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Guidance Documents

- AQAC Tech Notes
- Integrate AQAC into:
  - National Planning Procedures Handbook
  - National Environmental Compliance Handbook
  - Animal Waste Management Field Handbook
  - Other agency documents

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Where Should We Go?

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Integrating AQAC into Conservation Planning

- Addressing AQAC is no different than addressing other resources in planning
  - In fact, it is very similar to planning for water quality
- NRCS planning steps that require specialized AQAC knowledge/experience
  - Step 1 – Identify Problems and Opportunities
  - Step 3 – Inventory Resources
  - Step 4 – Analyze Resource Data

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Identify Problems and Opportunities

- If you don't know what you are looking for, you will probably not see it
- Knowledge is power
  - Understand the AQAC resource concerns
  - Know what/where the sources are
  - Know where to find AQAC information

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Inventory Resources

- As part of your natural resource inventory, conduct an AQAC assessment
  - Airshed assessment
    - What are the off-farm considerations that may affect your planning?
      - This may be done on a regional, basin, or district level
  - On-farm assessment
    - What are the on-farm considerations that may affect your planning?
      - Sources, emissions, siting/location, etc.

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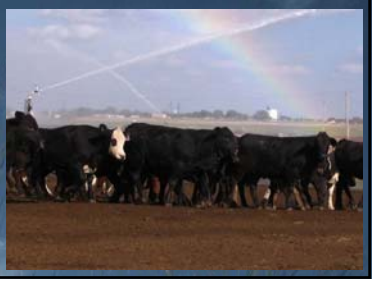
Analyze Resource Data

- Use the information collected to develop a comprehensive conservation plan
  - Prioritize
  - Be efficient



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Prioritize

- Determine whether air quality is a priority for the plan site (in relation to other resource concerns)
- If so:
  - Identify your greatest air quality issue
  - Address the source(s) and emission(s) that most affect that issue first
  - Use good conservation planning to eliminate or minimize negative effects to other resource concerns

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Example - Priorities

- In an area with odor problems, you would focus on:
  - VOCs
  - Ammonia
  - Sulfur compounds

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Example - Priorities

- If you are near a national park or other scenic area (visibility concerns), you would focus on:
  - Particulate matter
  - NOx
  - VOC
  - Ammonia

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Be Efficient

- Efficiency (or lack thereof) has a big influence on air emissions
  - If nutrients, compounds, molecules, etc., are efficiently utilized for agricultural production, there is less left to be emitted

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Be Efficient

- "Manage" to be out of "control"
  - "Control" implies that reductions are required
  - "Control" typically is an end-of-process add-on
  - "Control" may be necessary in some cases, but "management" includes more than just "control"
  - "Managing" inputs may result in a more efficient approach
    - There may be less output to "control"

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Controls

- Used strictly to reduce amount of pollutants emitted
- May have other benefits, but may also require more inputs or energy
- Examples:
  - Biofilters
  - Chemical additives
  - Incinerators

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Management

- Generally proactive approach that may have additional resource benefits
- May be able to be incorporated into normal operation
- Examples:
  - Feed management
  - Nutrient management
  - Cleaning up spills

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Be Efficient

- Look for opportunities to maximize efficiency
  - Feed management
  - Nutrient management
  - Energy use
  - Reduce number of process steps/operations/passes

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Summary

- NRCS AQAC efforts are moving forward
- Conservation planning for AQAC is really no different than “normal” planning
- Prioritize your planning efforts
- Be efficient

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